CLAIMS

What is claimed is:

1. In a computing environment, a method comprising:

receiving a continuous path (P) of an intermittent fillet weld bead to be used to weld a plurality of components of an article of manufacture together at one or more edges of one or more faces of the components in the manufacturing of the article outside the computing environment;

determining an invariant weld bead generation direction for the continuous path (P);

subdividing the continuous path (P) into substantially equal length sub-paths placed at substantially equal distance (d) from each other; and

naming each sub-path, including its edge and vertices, employing the invariant weld bead generation direction.

2. The method of claim 1, said determining of an invariant weld bead generation direction comprises determining at least a global start vertex (GS).

3. The method of claim 2, wherein the determining of at least a global start vertex (GS) comprises determining whether the continuous path (P) is an open path or a closed path.

4. The method of claim 3, wherein for an open path, the determining further comprises determining which one of two ends of the continuous open path is closest to an initial pick point of a face of a component, and selecting the end as the global start vertex (GS).

5. The method of claim 4, wherein for an open path, the determining further comprises selecting the other end as a global end vertex (GE).

6. The method of claim 3, wherein for a closed path, the determining further comprises determining whether the closed path is a closed single segment path, or a closed multiple segment path.

7. The method of claim 6, wherein for a closed single segment path, the determining further comprises selecting its single vertex as the global start vertex (GS).

8. The method of claim 7, wherein for a closed single segment path, the determining further comprises selecting the single vertex as a global end vertex (GE).

9. The method of claim 6, wherein for a closed multiple segment path, the determining further comprises selecting a first vertex of the multiple segment path with a lowest integer index as the global start vertex (GS).

10. The method of claim 9, wherein for a closed multiple segment path, the determining further comprises selecting a second vertex of the multiple segment path with a next lowest integer index as a global end vertex (GE).

11. The method of claim 10, wherein said naming comprises generating a name for a selected one of an edge of a sub-path and a vertex of a sub-path.

12. The method of claim 11, wherein said generating comprises forming an input set for a name generation table, the input set including a name of a progenitor edge, a split index and a vertex flag, and providing the input set for the name generation table to return an unique and persistent name.

13. The method of claim 12, wherein when naming a sub-path, said forming comprises setting the vertex flag to a value of –1 for an edge.

14. The method of claim 12, wherein when naming a vertex, said forming comprises setting the vertex flag to a value of 0 for a starting vertex, and to a value of 1 for an ending vertex.

15. The method of claim 12, wherein the name generation table generates and returns a new name if the input set is new, as well as saves the generated and returned new name, input set combination, and the name generation table further returns the previously generated and returned name if the input set has been previously provided to the name generation table function.

16. A machine readable article comprising

a machine readable storage medium; and

a plurality of machine executable instructions stored in the machine readable storage medium, with the instructions designed to enable a apparatus to

receive a continuous path (P) of an intermittent fillet weld bead to be used to weld a plurality of components of an article of manufacture together at one or more edges of one or more faces of the components in the manufacturing of the article outside the apparatus;

determine within the apparatus an invariant weld bead generation direction;

subdivide within the apparatus the continuous path (P) into substantially equal length sub-paths placed at substantially equal distance (d) from each other; and

name within the apparatus each sub-path, including its edge and vertices, employing the determined invariant weld bead generation direction.

17. The article of claim 16, wherein the instructions are designed to enable the apparatus to determine, as part of said determining of an invariant weld bead generation direction, at least a global start vertex (GS).

18. The article of claim 17, wherein the instructions are designed to enable the apparatus to determine, as part of said determining of at least a global start vertex (GS), whether the continuous path (P) is an open path or a closed path.

19. The article of claim 18, wherein the instructions further enable the apparatus to

determine, for an open path, which one of two ends of the continuous open path is closest to an initial pick point of a face of a component, and select the end as the global start vertex (GS), and the other end as a global end vertex (GE); and

determine, for a closed path, whether the closed path is a closed single segment path or a closed multiple segment path,

select, for a closed single segment path, its single vertex as the global start vertex (GS) as well as a global end vertex (GE), and

select, for a closed multiple segment path, a first vertex with a lowest index as the global start vertex (GS), and a second vertex with a next lowest index as a global end vertex (GE).

20. The article of claim 16, wherein said naming comprises generating a name for a selected one of a sub-path and a vertex of a sub-path, including forming an input set for a name generation table, the input set including a name of a progenitor edge, a split index and a vertex flag, and providing the input set for the name generation table to return an unique and persistent name.

21. An apparatus comprising:

storage medium having stored therein a plurality of instructions designed to enable the apparatus to

receive a continuous path (P) of an intermittent fillet weld bead to be used to weld a plurality of components of an article of manufacture together at one or more edges of one or more faces of the components in the manufacturing of the article outside the apparatus;

determine within the apparatus an invariant weld bead generation direction;

subdivide within the apparatus the continuous path (P) into substantially equal length sub-paths placed at substantially equal distance (d) from each other; and

name within the apparatus each sub-path, including its edge and vertices, employing the determined invariant weld bead generation direction; and

at least one processor coupled to the storage medium to execute the instructions.

22. The apparatus of claim 21, wherein the instructions are designed to determine, as part of said determining of an invariant weld bead generation direction, at least a global start vertex (GS).

23. The apparatus of claim 22, wherein the instructions are designed to determine, as part of said determining of at least a global start vertex (GS), whether the continuous path (P) is an open path or a closed path.

24. The apparatus of claim 23, wherein the instructions further enable the apparatus to

determine, for an open path, which one of two ends of the continuous open path is closest to an initial pick point of a face of a component; and

determine, for a closed path, whether the closed path is a closed single segment path or a closed multiple segment path.

25. The apparatus of claim 24, wherein the instructions further enable the apparatus to

select, for an open path, which the end determined to be closest to an initial pick point of a face of a component as the global start vertex (GS), and the other end as a global end vertex (GE);

select, for a closed single segment path, its single vertex as the global start vertex (GS) as well as a global end vertex (GE), and

select, for a closed multiple segment path, a first vertex with a lowest index as the global start vertex (GS), and a second vertex with a next lowest index as a global end vertex (GE).

26. The apparatus of claim 21, wherein the instructions are designed to enable the apparatus to generate, as part of said naming, a name for a selected one of a sub-path and a vertex of a sub-path.

27. The apparatus of claim 26, wherein said generating comprises forming an input set for a name generation table, the input set including a name of a progenitor edge, a split index and a vertex flag, and providing the input set for the name generation table to return an unique and persistent name.

28. The apparatus of claim 27, wherein the instructions are further designed to enable the apparatus to

setting the vertex flag to a value of –1, when naming an edge of a sub-path; and

setting the vertex flag to a value of 0 for a starting vertex, and to a value of 1 for an ending vertex, when naming a vertex.

29. The apparatus of claim 27, wherein the name generation table function generates and returns a new name if the input set is new, and the name generation table function further saves the generated and returned new name, input set combination.

30. The apparatus of claim 27, wherein name generation table function returns the previously generated and returned name if the input set has been previously provided to the name generation table function.